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(73)実用新案権者　000004237
日本電気株式会社
東京都港区芝五丁目７番１号

(72)考案者　村田　智司
東京都港区芝五丁目７番１号日本電気株式会社内

(74)代理人　弁理士　京本　直樹　(外２名)

審査官　坪野　孝

(56)参考文献　特開　平４－143299（ＪＰ，Ａ）
実開　平３－34064（ＪＰ，Ｕ）

(54)【考案の名称】　めっき処理装置

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(57)【実用新案登録請求の範囲】

【請求項１】　カップ状の槽と、この槽の底部よりめっき液をアノード電極を通して噴流させる手段と、前記槽の開口を塞ぐように搭載される半導体基板に接触するカソード電極とを有するめっき処理装置において、前記アノード電極と前記カソード電極との間に中央部に穴が明けられるリング状の絶縁板を配置することを特徴とするめっき処理装置。

【請求項２】　カップ状の槽と、この槽の底部よりめっき液をアノード電極を通して噴流させる手段と、前記槽の開口を塞ぐように搭載される半導体基板に接触するカソード電極とを有するめっき処理装置において、前記アノード電極を中央の円形領域、及びこの円形領域を囲む複数のリング状領域に分割し、それぞれに異なる電流密度を与える電源制御部とを備えることを特徴とするめっき処理装置。

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【考案の詳細な説明】

【０００１】

【産業上の利用分野】本考案は、半導体基板の一主面にめっき液を噴流させて処理を行なうめっき処理装置に関する。

【０００２】

【従来の技術】図３は従来の一例におけるめっき処理装置を示す図である。

【０００３】従来、この種のめっき処理装置は、例えば図３に示すように、めっき液導入口１３とアノード電極２が設けられたカップ状の槽３と、この槽３の導入口１３おりめっき液９を噴流されるフィルタ１０及びポンプ１１と、アノード電極２を通して噴流するめっき液９が槽３外に流れ落ちるのを貯める外槽７と、槽３の開口を

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DETAILED DESCRIPTION

[Detailed explanation of a design]
[0001]
[Industrial Application] This design is related with the plating processor which processes by carrying out the jet of the plating liquid to one principal plane of a semiconductor substrate.
[0002]
[Description of the Prior Art] Drawing 3 is drawing showing the plating processor in a conventional example.
[0003] Conventionally this kind of plating processor For example, the cup-like tub 3 in which the plating liquid inlet 13 and the anode electrode 2 were formed as shown in drawing 3 , The filter 10 and pump 11 by which a jet is carried out in the inlet 13 cage plating liquid 9 of this tub 3, It has the outside tub 7 which stores that the plating liquid 9 jetted through the anode electrode 2 flows and falls out of a tub 3, the cathode electrode 4 in contact with the semiconductor substrate 1 carried so that opening of a tub 3 might be plugged up, and the heater 8 which is in the outside tub 7 and warms plating liquid.
[0004] Such a plating processor was used and the bump for a circuit pattern or electrodes was formed on the semiconductor substrate 1. Moreover, by carrying first, so that the semiconductor substrate 1 may be plugged up to opening of a tub 3, carrying out the jet of the plating liquid from the inlet 13 in the pars basilaris ossis occipitalis of a tub 3, and giving the potential difference to the anode electrode 2 and the cathode electrode 4, operation of this plating processor performed plating processing to the principal plane of the semiconductor substrate 1, and formed the circuit pattern or the bump. Moreover, the plating liquid which flows and falls out of a tub 1 was stored in the outside tub 7, was heated by predetermined temperature at the heater 8, and was fed in the tub 1 with the pump 11.
[0005]
[Problem(s) to be Solved by the Device] Although a fixed interval is opened and the semiconductor substrate and the anode electrode are made to counter in the conventional

plating processor mentioned above, ******** in a semiconductor substrate processed side varies, i.e., ******** of the core of a semiconductor substrate is thin and has the inclination for ******** of the semiconductor substrate periphery section to be thick. This has the problem of reducing the yield of a product.

[0006] The purpose of this design is to offer the plating processor which solves the aforementioned technical problem.

[0007]

[Means for Solving the Problem] The 1st plating processor of this design is having the ring-like electric insulating plate with which a hole breaks in the center section between the aforementioned anode electrode and the aforementioned cathode electrode arranged.

[0008] Moreover, the 2nd plating processor of this design divided the aforementioned anode electrode into a central circular field and two or more ring-like fields surrounding this circular field, and is equipped with the power control section which gives current density which is different in each.

[0009]

[Example] Next, this design is explained with reference to a drawing. Drawing 1 is the cross section of the tub of the plating processor in which the 1st example of this design is shown. This plating processor is forming the control strip 12 of the shape of a ring which had arbitrary bores with insulation between the anode electrodes 2 which are made to counter with the semiconductor substrate 1 as shown in this drawing, open a fixed interval, and are prepared. It is the same as the former except it.

[0010] By changing the size of the bore of this control strip 12, the current density which flows between the semiconductor substrate 1 and the anode electrode 2 can be changed, the plating efficiency of semiconductor substrate 1 core is gathered, the plating efficiency of the semiconductor substrate 1 periphery section is lowered, and dispersion in ******** can be reduced.

[0011] Drawing 2 is the cross section of a tub showing the 2nd example of this design, and the plan of an anode electrode. This plating processor is having formed the power supply 5 which divides into circle configuration field 2a which is in a center section about the anode electrode which counters with the semiconductor substrate 1 and is prepared, and the ring-like fields 2b and 2c surrounding this circle configuration field 2a as shown in this drawing, and is connected to these fields, and the power control section 6 controlled to generate the current from which these power supplies' 5 differ. It is the same as the former except it. Thus, dispersion in ******** can be reduced by dividing an anode electrode into three fields and changing the current density which flows between the cathode electrode 4 and these fields. Moreover, even if the plating power supply 5 in this this example is a function power supply, it can control on real time and there is an advantage that the amendment to the semiconductor substrate 1 for every form can also be performed further easily.

[0012]

[Effect of the Device] As explained above, this design is effective in the plating processor which can perform uniform plating processing according to the processing side of a semiconductor substrate being obtained by preparing a semiconductor substrate, the electric insulating plate which is a means to change the current density which flows to anode inter-electrode, or the divided anode electrode.

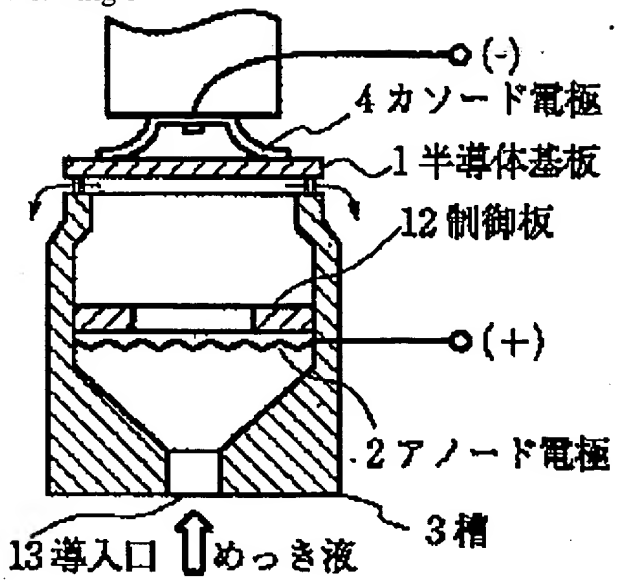
CLAIMS

(57) [Utility model registration claim]

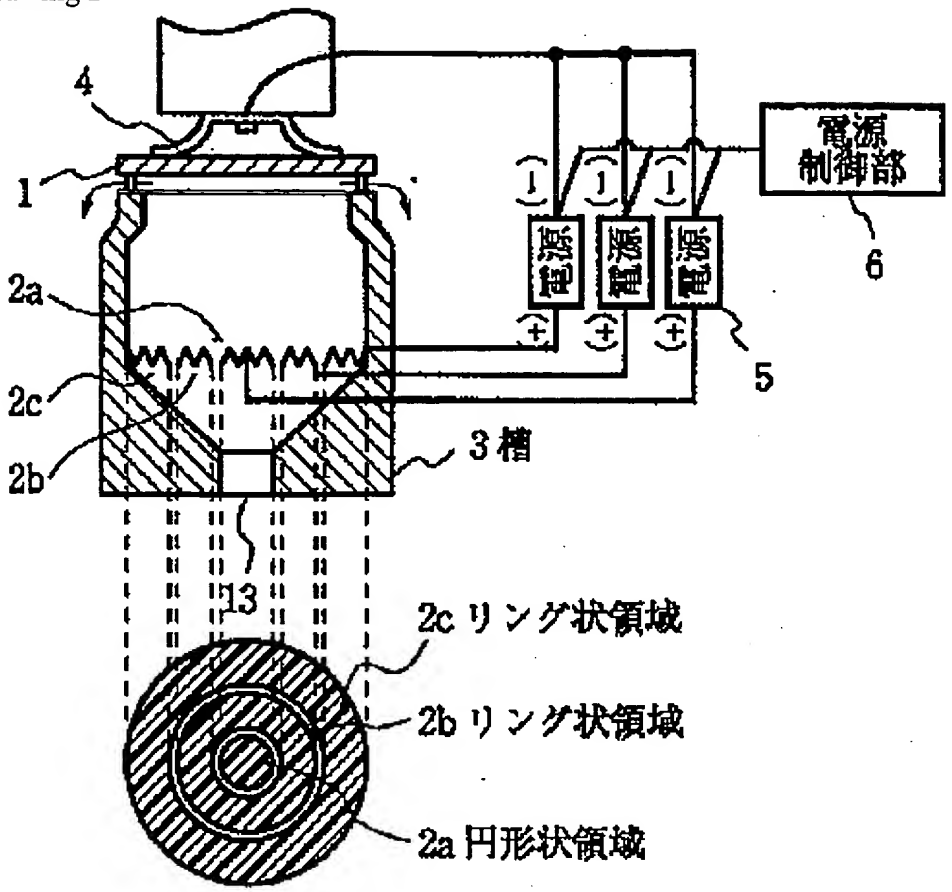
[Claim 1] The plating processor characterized by arranging the ring-like electric insulating plate with which a hole breaks in the center section between the aforementioned anode electrode and the aforementioned cathode electrode in the plating processor which has a cup-like tub, the means to which the jet of the plating liquid is carried out through an anode electrode from the pars basilaris ossis occipitalis of this tub, and a cathode electrode in contact with the semiconductor substrate carried so that opening of the aforementioned tub may be plugged up.

[Claim 2] The plating processor characterized by to have the power-control section which gives current density which divides the aforementioned anode electrode into a central circular field and two or more ring-like fields surrounding this circular field in the plating processor which has a cup-like tub, the means to which the jet of the plating liquid is carried out through an anode electrode from the pars basilaris ossis occipitalis of this tub, and a cathode electrode in contact with the semiconductor substrate carried so that opening of the aforementioned tub may be plugged up, and is different in each.

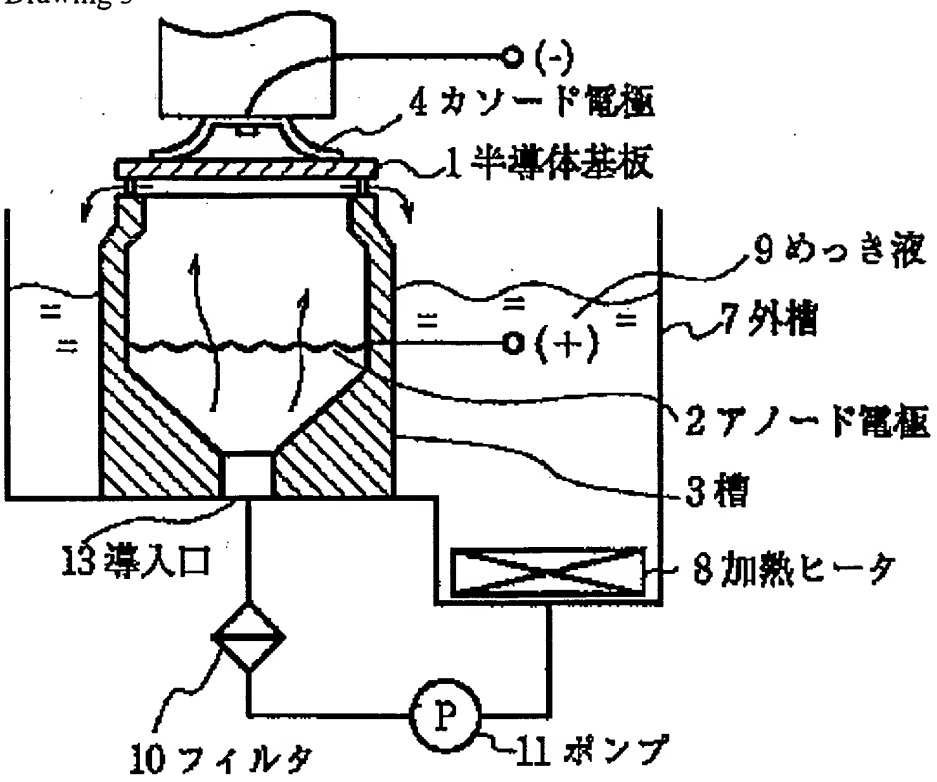
Drawing 1



Drawing 2



Drawing 3


(-)
4 カソード電極
1 半導体基板
9 めっき液
7 外槽
(+)
2 アノード電極
3 槽
13 導入口
8 加熱ヒータ
P
10 フィルタ
11 ポンプ